

The logo consists of three white, stylized, wavy lines that resemble seaweed or water ripples, positioned to the left of the text.

Seaweed Solutions

Production and market update

SIG Seaweed 7 Conference Trondheim
15th November 2022

ABOUT Seaweed Solutions



- Founded in 2009. Norway's first seaweed farming company
- Fully integrated: from hatchery to processed seaweed
- Our flagship farm is located off the coast of Frøya, Norway's leading aquaculture region
- B2B sale of high quality, organic certified *Saccharina latissima* (sugar kelp) and *Alaria esculenta* (winged kelp) to food and feed
- Production and sales of seedlings to external seaweed farmers
- International team (11 fulltime + seasonal workers)
- Strong focus on R&D and partnerships

Farming in Trøndelag, Norway



FORSKNINGSPARKEN
OSLO SCIENCE PARK



From spore to processed raw material



The Production

- 200 tons harvested in 2022
- The seaweed is sorted, packed and frozen quickly after harvest, either raw or blanched
- 38 tons blanched in 2022
- Drying through 3rd parties
- Organic certification, HACCP, quality control
- Developing alternative, low-energy processing alternatives: fermentation, acid preservation



The Market

- **Current market: Food**
 - Texture and taste (umami)
 - Dietary fibers and minerals
 - Vegan/plant based
 - Sustainable/"climate friendly"
 - Healthy
 - Clean label, "natural"
 - Salt replacement
- Small volumes to feed and cosmetics
- **Future markets:** functional feed ingredient, bioplastic, raw material for biorefineries etc.



Photo: Orkla

THE PRODUCT - ALOBA

THE ALOBA FAMILY



OCEANFRUIT



TU-NAH

— Bettaproteins from the sea

100% PLANT-BASED

Creating the most delicious plant-based tuna replacements out there made from sea proteins and micronutrients

BettaFish



01

02



The Norwegian market



 Seaweed Solutions



E24 |

Børs Aksjelive Tips oss! E24+ Meny

Det grønne skiftet

Orkla satser på matproduksjon av tare: – Litt større risiko enn en ny pizza

Orkla, Norges største matprodusent tror tang og tare kan bli det neste store norske eventyret, og kjøper seg inn i norsk råvareprodusent.



Seedlings to external seaweed farmers

- >10 year's biological experience
- Ongoing R&D related to yield and quality (substrate, breeding etc.)
- Infrastructure with high capacity in place
- 30 km delivered to customers for the 2022 season
- 65 km planned for 2023
- Rapidly growing demand



Scaling up the cultivation

- The demand is (finally) increasing!
- Installing our 2nd seaweed farm
- Doubling the production from 2022 to 2023
- Applied for two new farming sites in Frøya
- How to reach 1000s of tons?
 - Mechanizing the sea operations
 - Streamlining the processing
 - Continue to develop the markets



HIDDEN CHAMPION OF THE OCEAN

Seaweed as a growth engine for a sustainable European future

Hidden champion at a glance

Seaweed (macroalgae) provides a range of product applications...

- Animal feed
- Food
- Pharmaceuticals & nutraceuticals
- Additives
- Biopackaging
- Cosmetics
- Biostimulants
- Biobuels
- Valorisation of ecosystem services

...which could scale the European seaweed industry...	...creating significant environmental benefits...	...and strong social impact.
€9.3bn potential market value by 2030 <small>(of which 30% supplied by seaweed grown in Europe)</small>	Mitigation of >5m t of CO ₂ e emissions p.a. Absorption of 20,000 t of nitrogen and 2,000 t of phosphorus from the ocean p.a. Provision of ecosystem services (food, habitat, nursery ground for marine species) No need for freshwater, fertiliser or cleared land	Creation of 115,000 jobs for different skill and experience profiles Revitalisation of coastal communities Improvement of diets and general health

Europe is perfectly suited for such a scale up.

- Ideal growing conditions with nutrient-rich, cold waters
- Burgeoning innovation capacity including start-ups and SME players across the value chain
- Existing and fast-growing demand for seaweed-based products and ingredients
- Strong alignment with European Green Deal objectives and priorities

To deliver this potential, the nascent European seaweed industry must accelerate and significantly grow its production capacity.

From **~300,000 t** of fresh weight seaweed produced today to **>8m t** of fresh weight seaweed produced in 2030

By following five key guiding principles, the industry can become a pioneer for green and equitable growth and play an integral part in our "new normal".

1. Be guided and informed by science
2. Measure and monitor success using holistic metrics
3. Embrace a system view
4. Make the system resilient
5. Share benefits fairly among stakeholders

Targeted action in six priority areas can put this industry on the right track to fully unlock this promising potential.

1. Optimize seaweed farming licensing process
2. Attract public and private investors to the seaweed space
3. Create a strong and collaborative stakeholder network
4. Establish robust safety standards and a comprehensive certification system
5. Raise awareness on the benefits and potential of seaweed
6. Leverage science to accelerate innovation

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- EUR 9 bn market potential by 2030 for EU seaweed
- 8 m ton cultivated

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Students and interns

R&D and project partners



THANK YOU!

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